

REMARKS

Applicant requests favorable reconsideration and allowance of the subject application in view of the preceding amendments and the following remarks.

Claims 17-25 are presented for consideration in lieu of claims 11-16, which have been canceled without prejudice or disclaimer. Claim 17 is the sole independent claim. Support for these claims can be found in the original application, as filed. Therefore, no new matter has been added.

Canceled Claims 11 and 14-16 were rejected under 35 U.S.C. § 102(a) as being anticipated by U.S. patent application publication number 2003/0007136 to Emoto et al. Canceled Claim 12 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the Emoto et al. publication in view of U.S. patent application publication number 2002/0057424 to Shima. Canceled Claim 13 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the Emoto et al. publication in view of U.S. patent application publication number 2002/0017616 to Ota. With regard to new Claims 17-25, these rejections are respectfully traversed.

New independent Claim 17 is directed to exposure apparatus that exposes a substrate to light via a reticle pattern. In the apparatus, a first temperature adjustment system having a flow path of pure water is configured to adjust the temperature of a motor. A second temperature adjustment system having a flow path of a coolant selected from the group consisting of a fluorine-based inert solution, a gas and an antifreeze is configured to adjust the temperature of the atmosphere that includes a path of the light.

In Applicant's view, Emoto '7136 discloses an exposure apparatus in which pure water with a resistivity of 1 M.OMEGA..multidot.cm or more is externally supplied and in which a master and substrate are relatively moved and aligned by a stage driven by a linear motor. A pattern on the master is transferred onto the substrate. While being adjusted to a predetermined temperature, the pure water undergoes deoxidation processing and UV sterilization processing and is circulated to cool the linear motor.

In Applicant's opinion, Shima discloses an exposure apparatus that has an illuminating optical system for illuminating a mask with illuminating light from a light source. A projection optical system projects a pattern image, which has been formed on the mask, onto a wafer constituting a photosensitive substrate. An alignment sensor constructs a position detection system for detecting an alignment mark on the wafer. The pattern region on the wafer is formed at a position offset toward the side of the alignment sensor from the projection center of the projection optical system, and the alignment sensor is disposed on the side near the pattern region formed on the wafer off-centered from the optic axis. By thus shortening baseline distance, the effects of measurement error due to baseline fluctuation can be reduced and it is possible to achieve highly precise detection of the position of an object to be detected (a position detection mark) and highly precise alignment.

Ota, in Applicant's view, discloses exposure apparatus in which an illumination beam emitted from a mask is projected onto a substrate, through a projection optical system having a reflecting optical element that includes a reflecting region for reflecting the illumination beam at a position spaced from an optical axis of the projection optical system. A space portion is

provided on the side of the optical axis with respect to the reflecting region. The apparatus further includes a position detecting device for detecting position information of the substrate, at least part of which is located in the space of the reflecting optical element.

According to the invention of Claim 17, a coolant selected from the group consisting of a fluorine-based inert solution, a gas, and an antifreeze is configured as a second temperature adjustment system to adjust the temperature of the atmosphere that includes a path of the light that exposes a substrate. Emoto '7136 may disclose the use of a fluorine-based inert coolant in the flow path including the jacket of a linear motor but fails to teach or suggest adjusting the temperature of a light path atmosphere using a fluorine-based inert solution, a gas, or an antifreeze as a coolant. Similarly, Shima fails to teach or suggest that a fluorine-based inert solution, a gas, or an antifreeze is used as a coolant. Ota only teaches the use of a trademarked coolant "FLUORINERT" in a jacket surrounding a lens array but is devoid of any suggestion of the use of a fluorine-based inert solution, a gas, or an antifreeze as a coolant for adjusting the temperature of an exposure apparatus atmosphere. Accordingly, it is not seen that any of the cited references teaches or suggests the feature of Claim 17 of a first temperature adjustment system with a flow path of pure water for adjusting the temperature of a motor combined with the feature of a second temperature adjusting system with a flow path of a fluorine-based inert solution, a gas, or an antifreeze to adjust the temperature of the light path atmosphere. It is therefore believed that Claim 17 is completely distinguished from any combination of Emoto '7136, Shima and Ota and is allowable.

For the foregoing reasons, Applicant submits that the present invention, as recited in independent claim 17, is patentably defined over the cited art, whether that art is taken individually or in combination.

Dependent claims 18-25 also should be deemed allowable, in their own right, for defining other patentable features of the present invention in addition to those recited in independent claim 11. Further individual consideration of these dependent claims is requested.

Applicant further submits that the instant application is in condition for allowance. Favorable reconsideration, withdrawal of the rejections set forth in the above-noted Office Action and an early Notice of Allowance are requested.

Applicants' attorney, Steven E. Warner, may be reached in our Washington, D.C. office by telephone at (202) 530-1010 All correspondence should continue to be directed to our address given below.

Respectfully submitted,

  
\_\_\_\_\_  
Attorney for Applicants  
Jack S. Cubert  
Registration No. 24,245

FITZPATRICK, CELLA, HARPER & SCINTO  
30 Rockefeller Plaza  
New York, New York 10112-3800  
Facsimile: (212) 218-2200